

Devices: A location for feminist analytics and praxis

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This article offers the device as a methodological tool and concrete space for feminist praxis that can challenge the order of a world that is patriarchal, racist, and organized around capital extraction. Material or immaterial in form, a device is a tool through which different actors ground, produce, and concretize technological, legal, scientific, and political work. Many objects can become devices when pragmatically activated toward a particular effect; the challenge is to grasp them as such in the field and assess them for their political power and potential to bring forth possible worlds. Through examples from anthropology and adjacent literatures, we show how people accomplish three kinds of political work through their devices. Devices are sometimes used to solidify a domain of social life, such as the economy, the population, or race. Devices can constellate and produce a patterned effect, such as anti-Blackness. Moreover, devices can be used to clear space for new and maybe unexpected possibilities. We end by articulating how the device, by way of its artificiality, offers potential pathways for furthering ethnographic and analytic practices and performing feminist political work.

After consulting with her attending physician, a dermatology resident returns to her patient's exam room, takes out her phone, and pulls up a mobile application that will help her determine the patient's psoriasis area and severity index (PASI) score. While not necessary for diagnosis, this score might make it easier for the patient to receive a better, more costly treatment approved by their insurance. The application is little more than a questionnaire-with-an-interface version of the tool and feels "objective." Each click seems to bring the resident closer to the truth of the patient's disease. And yet calculating the PASI score includes questions about erythema, or skin redness, even though that is hard to measure on the body of the Black patient in front of the resident. The app shows images at the bottom of the screen, but all are on the surfaces of seemingly white bodies. Nevertheless, the resident uses the tool to get a score to document and archive in the patient's chart.

Here, the PASI score serves as a device, "a highly effective instrument for organizing and channeling technopolitical work" (Ballesteros 2019, 9). It is used to "objectively" measure psoriasis severity for research and clinical purposes. Although the PASI deploys language and imagery that exclude people of color, it remains powerful in structuring research and care for people with psoriasis because it is ratified by medical institutions and individual caregivers. It is accepted as evidence of a patient's disease experience by entities like insurance companies. An array of actors utilize and interpret this device and contribute to the coherence of larger systems (here, anti-Blackness and "evidence-based medicine"). By using the PASI, despite its limitations, in their everyday practices,

people help this device cohere and increase both its social significance and its power to affect the skin and well-being of Black people.

In this keyword entry, we offer the device as a unit of anthropological and feminist analysis and practice with a unique combination of conceptual and political possibilities. The device is an instrument for critical thought that identifies concrete sites where legacies of oppression and exclusion are reproduced. It brings systemic questions into ethnographic focus. While holding this powerful analytic reach, the device is never a decontextualized analytic tool. It is a critical object of concern that ethnographers share with their interlocutors and collaborators. In the example above, both the anthropologist and resident have questions about PASI as a device. A device thus lays out a space of shared reflection and potential action; it fosters conditions for transformative collaboration. From a feminist standpoint, the critical potential of the device is not limited to understanding how it is created, how those who use it make sense of it, or how it functions as an arbitrator of facts and truths. Rather, much of the device's power lies in how it makes visible the links between the establishment of facts and truths and the consequences those have on people's bodies and histories as a result of their sustained use.

Devices appear often in feminist, sociolegal, and science and technology studies (STS) scholarship. However, they are rarely theorized as such. Scholars often take their meanings for granted by focusing on a device's substantive effects without pausing to critically theorize what a device is or what its substantive effects in the world are. This article works with the device as a conceptual object. We bring forth its theorization following a feminist ethos of expansion, co-building, and extension. In other words, instead of assuming *terra nullius* to sustain a claim of discovering uncharted territory, we show the productive ways that scholars have documented the work devices do even when these scholars do not dwell on the theorization of devices *qua* devices. Thus, we offer a definition, describe the analytic reach of the device, and provide examples of three effects that illustrate how thinking with devices can channel efforts to challenge the order of a world that is patriarchal, racist, and organized around capital extraction. The device is a lively and promising analytic because it is suited for site-specific political action while it reveals how general patterns of injustice, exclusion, and inequality are cemented into lasting structures via everyday practices. This analytic and practical potential offers a way out of seemingly irresolvable scalar oppositions and temporal disjunctures at the heart of many of the problems we face. Through its concreteness, the device is an engaging and promising site for feminist thinking and practice.

Proposing an Understanding

Devices are dense with intentions to format social relations (Law and Ruppert 2013, 239). They perform "political work [that] merges practices and desires with long-standing assumptions about sociality that have been embedded" in technical languages (Ballester 2019, 9). Devices are of value not only because they have a literal meaning but because they are activated to produce an effect, even if their actual consequences are unexpected. Think of a legal taxonomy, a predictive algorithm, a spirometer, or a hair coloring chemical. These are devices that aid in organizing our everyday lives and bodies. They are designed to achieve specific objectives—even if they do not successfully do so all the time—and they also help us make ourselves intelligible to others.

Devices can be material or immaterial. A material device like a pulse oximeter does not just measure our bodies' blood oxygen concentration; it communicates results to inspire action. The oximeter also enacts histories of medicine wherein certain bodies are rendered measurable while

others are merely presumed to be (Moran-Thomas 2020). Material devices are embedded in our lives, and sometimes our bodies, and play a significant role in daily activities. Immaterial devices do similar work, though they cannot be touched or manipulated as such. These devices can be named and are recognizable as entities by way of their effects. For example, the body mass index (BMI) determines medical recommendations and beauty standards. Immaterial devices make a difference in people's lives even when they are not immediately apparent or accessible for inspection. For this reason, such devices require technical expertise to be identified in the first place.

Something is a device when it has been mobilized to bring about "a difference which makes a difference" (Bateson 2000, 315). Here, a difference is not circumscribed to the realm of information, as it was for anthropologist Gregory Bateson,¹ but has a broader significance. A difference that makes a difference is one intended to unleash a distinct trajectory, often in the hopes that such a trajectory leads in a new direction. In feminist and anti-colonial scholar Max Liboiron's (2021, 23) terms, "rather than mobilize specificity and particularism for categorization, [the point is] to situate differences that matter to political action." Devices can reorganize those differences and, in the process, reorganize the lives of an individual, a group of people, and even whole societies—including their more-than-human participants.

Drawing on the concept of a device to conduct feminist analysis and critique has two powerful implications (Ballester 2019, n.d.). First, it reveals the metaphysical assumptions behind its form to show how these social objects do more than accomplish pragmatic tasks. A device reinforces distinct understandings of what the world is, of who is a legitimate participant in that world, and of what kind of change is acceptable or not. Second, a device is powerful because it operates as a temporal hinge. While it draws our attention to the histories that are braided through its technicality, a device makes explicit whether and how people intend for those historic patterns to persist. A device opens up the question of future histories, "happenings that will be recognizable as meaningful only from the future" (Ballester 2019, 26). This is an orientation to the world that refuses limiting itself to documenting lack (Fujikane 2021). Instead, it puts in place the question of a feminist future brought about through "what we understand as the goings on of the present" (Ballester 2019, 27). As an analytic and political entry point, the device identifies concrete sites of intervention where the terms of the future can potentially be transformed.

Given these capacities, the device is a privileged site from which to engage in what Black studies scholar and philosopher Sylvia Wynter (1992) calls a "deciphering" practice. For Wynter, analysis and critique should "seek to identify not what texts and their signifying practices can be interpreted to mean but what they can be deciphered to do" and, along with that, the concrete means by which "they do what they do" (266-67). While for Wynter, this is a guide to approach texts, we extend this analytic to understand devices. Learning the patterns by which the world is done, and in the process signified, makes legible the regularities that keep said world in place and that preclude the emergence of different worlds. Devices are powerful sites from which to enact a feminist practice to challenge those regularities.

Devices and Their Effects

Something becomes a device based on the political work it performs and the effects it unleashes (Ballester 2019). While devices are technoscientific objects that create the "facts and artefacts" (Pinch and Bijker 1984) referred to in early STS work, we suggest that they are and do more than that. Our feminist approach demands that we focus not on the "closure" or "stability" of such objects

(see Kline and Pinch 1996; Pinch and Bijker 1984) but on their flexibility in meaning and use. Our approach builds on the feminist idea that "technoscience should not be narrated or engaged only from the points of view of those called scientists and engineers" (Haraway 1997, 50). Fundamentally, we suggest that the effects of devices sprawl to touch and organize social relations for those seemingly far away from and even unfamiliar with them. Consider the mathematical formula that determines the price utilities charge for water services (Ballesteros 2015). As a device, this formula affects the lives of many people and reaches well beyond those involved in its design and use and even in challenges to its power. Such distant effects are possible because devices braid histories at different scales with everyday practices and project those into ample future trajectories (9-10). Something becomes a device through its use, rather than through any inherent characteristic.

Next, we offer examples of three kinds of political work people accomplish by using their devices: solidifying a domain of social life by giving it a bounded character, producing a patterned effect, and clearing space for new and maybe unexpected possibilities. As they perform this work, devices can be combined and their effects compounded to result in a world where we see devices all around us. They constantly build off one another and expand a technopolitical mesh that reaches into every corner of our lives. Analytically, these effects also help guide our ethnographic sensibilities toward the specific devices at work in the social worlds of which we are part.

The first example, solidifying a domain of social life, refers to how devices convert large social domains or categories, such as economy or race, into entities that appear distinct with seemingly bounded social meanings and object-like characters. These devices give solidity to diffuse social formations, naturalizing both their existence and the hierarchies and values associated with them. Devices such as formulas and scientific categories turn economy, population, and race into objectified, "thing-like" domains. They become "the" economy, "the" population, or "a" race.

For instance, in *The Economization of Life* (2017), feminist historian and philosopher of science Michelle Murphy asks how population and economy become the natural context for human existence. The answer revolves around the S-curve, a scientific device that braids together eugenics, population growth, and macroeconomics. The S-curve converts the "law of life of any aggregate" into a logic that shapes reproductive rights, gross domestic product (GDP), and questions of whose life is disposable and whose deserves preservation. As a scientific device, the S-curve helps make a sweeping figure, "the" national economy, speakable (Murphy 2017, 5-6). It solidifies people's understanding of an apparently distinct domain called the national economy with enough potency to subsume the attribution of life and death under an economic logic. That potency is expressed by excluding alternative domains of life. The power of the S-curve is extended through research funding, by politicians and economists who invoke it regularly, and by the training of new knowledge workers. The S-curve channels the intellectual, political, and material energy necessary to keep "the" economy, as a distinct "thing," at the center of society.

In her study of clinical trials, medical anthropologist and STS scholar Natalí Valdez (2019) shows how the ethnic categorization of participants brings together colonial histories of UK imperial expansion with the racialized economic inequalities of the present. Such associations stabilize race as a distinguishable factor in reproductive health. Valdez notes that people working on clinical trials are required to fill in the blanks, performing a kind of improvisation that stimulates "reactions, responses and negotiations that help bring different valences of race into existence" (636). The ethnic categorization device activates this improvisational work, generating the necessary sutures to preserve logical consistency and grant it solidity. Through that work, the ethnic categorization device patches up race and ethnicity so that they stay in place as stable referents when people

make prescriptions about the kind of care that people should be entitled to. In this case, the classificatory device crystallizes race as a clear everyday domain, individualizes it, and erases structural inequalities and colonial histories as determinants of wellbeing.

Devices can also shape disconnected events and articulate them into patterned effects. Although people use various devices in different settings or historical moments, devices form constellations that unleash patterned effects. In other words, when one device is activated, its effects might seem exceptional (Benton 2015). But when analyzed as part of a constellation with other devices, we can see how their effects configure a pattern even as each device holds on to its own peculiarities, practical roles, and histories. The term *constellation* reminds us that this articulation is not centrally controlled by a total authority. Analytically, feminist ethnographers can approach these constellations by identifying a patterned effect and then seeking out multiple devices involved in bringing it about.

Elsewhere, in her work on race in dermatology, Oyarzun (2021) documents how anti-Blackness becomes an expansively coherent pattern within the medical system through "anti-Black devices." These devices include the Fitzpatrick skin phototyping scale used to denote patient skin color and the PASI score used to detect the severity of psoriasis. These devices operate as a constellation whereby seemingly independent decisions and everyday practices collectively (re)produce "acceptable failures" by healthcare providers and researchers. Acceptable failures result from everyday deployment of specific devices, which are backed by scientific institutions and professional standards. While they are not and should not be ethically acceptable, practices that employ these devices are legitimated by powerful actors despite their outcomes. The devices that enact these constellations are not limited to dermatology. Scholars have shown how medical devices such as the spirometer (Braun 2014) and the pulse oximeter (Moran-Thomas 2020) form constellations that turn histories and everyday practices into patterns of medical anti-Blackness.

Devices figure prominently in the social study of finance in which "market devices" are defined as "the material and discursive assemblages that intervene in the construction of markets" (Muniesa, Millo, and Callon 2007, 2). Those devices include financial charts, computer code, and architectural design, among others. When we link subjectivity, or a person's understanding of their role and place in society, to the use and activation of financial devices, we can see people turn an abstract set of properties into the patterns that characterize something that we call a financial market. People using a pricing formula, a business plan, and an algorithm may be geographically and temporally distant, yet their devices yield patterns that legitimate profits (Ballesteros 2015), turn liquidity and credit into the lifeblood of finance (Poon 2007; Weston 2013), and establish chains of individuals and institutions whose decisions yield the global consistency necessary for something like the subprime crisis of 2008 to occur (Schuster and Kar 2021).

Devices can also perform political work by turning taken-for-granted practices on their heads by expanding devices' openness and taking advantage of their flexibility to bring about social transformations. In feminist hands, devices can open possibilities for change. People can activate devices to construct, fabulate, or experiment with novel ways of making political, analytical, or methodological moves. At the same time, some of these devices can result in unexpected and unintentional transformations due to the openness and flexibility they carry, sometimes hidden within the black box of their technicality. Devices can bring new or unexpected possibilities into being.

In "The Image of Objectivity" (1992), historians of science Lorraine Daston and Peter Galison track the intended and unintended effects of the use of image-based atlases in the eighteenth and

nineteenth centuries. They show how interest among scientists in producing the most objective images reorganized social and moral orientations toward the scientist themselves. Eventually, the scientist's (non)intervention into the production of images became the scientific ideal. In that way, new imaging technologies like the camera and photographs became devices through which the subjectivity of scientists could be thought to disappear. Photographs fundamentally revolutionized science in ways not predicted at the outset of their deployment.

Black feminist geographer Katherine McKittrick infuses imaginative energy in citational practices in her recent book *Dear Science and Other Stories* (2021). McKittrick suggests that we can actively and consciously move away from citation as a way of denoting a sort of "property interest" over our own ideas (16). As her analysis of the dominant form of citation shows that "references concretize inequity," she both explains and practices another way of deploying citation in the text. McKittrick asks, "What if citation offers advice? What if citations are suggestions for living differently? What if some citations counsel how to refuse what they think we are?" (19). When citation is reconfigured and taken up as a device, explicitly or implicitly, we can more simply ask what it does and how it "respond(s) to certain demands" (da Costa Marques 2021). As a device, citation opens space to disrupt the continuity between referential beginnings and conclusions (McKittrick 2021, 23).

Conclusion: Devices and Their Artifacts

Devices are technical, artificial, and eminently cultural objects that shape the very grounds on which we organize sociality. Following this, we propose two areas for further anthropological attention.

The first is the technicity of the device itself, particularly in relation to the making of differences. At the structural and individual levels, our point is to "insist on the radical technicity" (Siegert 2015, 8) of the worlds of which we are part and of the devices that can bring about the differences necessary to make a difference. That technicity signals the legal, economic, scientific, and cultural constellations through which differences are fostered. Examining that technicity from a feminist standpoint opens concrete locations to escape the hegemonic power of crisis as a dominant mood of our times. Second, the artifacts a device leaves in its wake are fertile for feminist analysis and political action. Artifacts are evidence of what has happened and how. They also record failures and processes gone awry. By working through a device's artifacts we can equip ourselves to tactically and intentionally engage the worlds of which we are part. These artifacts constitute practical sites of collaboration with our interlocutors and open concrete entry points to challenge systemic and historical legacies of exclusion, violence, and dispossession.

More broadly, as an analytic entry point, the device helps think about both practice and structure, including the need to simultaneously grasp history and contemporary events-in-the-making. As a feminist methodological tool, the device does not stabilize or explain away things. Rather, the device provides the necessary focus to expand thinking and unsettle oppressive legacies.

Ultimately, a feminist engagement with the device aims to decouple it from the power that its supposed objectivity grants it and recouple it with technopolitical power necessary to seize a more just future. In feminist hands, a device has a capacious life. It is a conceptual companion, an ethnographic object, and a political tool. It is a concrete point of entry into everyday life, a site where historical patterns can be challenged, and a portal into potential futures. A device is a powerful channel for the political and analytic work necessary for, to borrow from Sylvia Wynter, deciphering the world.

Note

1 Bateson (2000) used the notion of "a difference that makes a difference" to define information within the cybernetic paradigm he was immersed in.

References

- Ballestero, Andrea. 2015. "The Ethics of a Formula: Calculating a Financial-Humanitarian Price for Water." *American Ethnologist* 42(2): 262-278.
- Ballestero, Andrea. 2019. *A Future History of Water*. Durham, NC: Duke University Press.
- Ballestero, Andrea. n.d. "Flickering Frontiers: Trusts and the Financialization of Water." (unpublished manuscript).
- Bateson, Gregory. 2000. *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*. Chicago: University of Chicago Press.
- Benton, Adia. 2015. *HIV Exceptionalism: Development through Disease in Sierra Leone*. Minneapolis: University of Minnesota Press.
- Braun, Lundy. 2014. *Breathing Race into the Machine: The Surprising Career of the Spirometer from Plantation to Genetics*. Minneapolis: University of Minnesota Press.
- da Costa Marques, Ivan. 2021. "Decolonizing Knowledge Devices." In *Experimenting with Ethnography: A Companion to Analysis*, edited by Andrea Ballestero and Brit Ross Wintherieik, 219-34. Durham, NC: Duke University Press.
- Daston, Lorraine, and Peter Galison. 1992. "The Image of Objectivity." *Representations* 40: 81-128. <https://www.jstor.org/stable/2928741>.
- Fujikane, Candace. 2021. *Mapping Abundance for a Planetary Future: Kanaka Maoli and Critical Settler Cartographies in Hawai'i*. Durham, NC: Duke University Press.
- Haraway, Donna J. 1997. *Modest_Witness@Second_Millenium.FemaleMan©_Meets_OncoMouseTM*. New York: Routledge.
- Kline, Ronald, and Trevor Pinch. 1996. "Users as Agents of Technological Change: The Social Construction of the Automobile in the Rural United States." *Technology and Culture* 37(4): 763-95. <https://doi.org/10.2307/3107097>.
- Law, John, and Evelyn Ruppert. 2013. "The Social Life of Methods: Devices." *Journal of Cultural Economy* 6(3): 229-240. <https://doi.org/10.1080/17530350.2013.812042>.
- Liboiron, Max. 2021. *Pollution Is Colonialism*. Durham, NC: Duke University Press.
- McKittrick, Katherine. 2021. *Dear Science and Other Stories*. Durham, NC: Duke University Press.
- Moran-Thomas, Amy. 2020. "How a Popular Medical Device Encodes Racial Bias." *Boston Review*, August 2020. <https://bostonreview.net/articles/amy-moran-thomas-pulse-oximeter>.
- Muniesa, Fabian, Yuval Millo, and Michel Callon. 2007. "An Introduction to Market Devices." *The Sociological Review* 55(2): 1-12. <https://doi.org/10.1111/j.1467-954X.2007.00727.x>.
- Murphy, Michelle. 2017. *The Economization of Life*. Durham, NC: Duke University Press.
- Oyarzun, Yesmar. 2021. "On Anti-Black Devices and Dermatological Perception." In *Systemic Racism in Health and Medicine: An Emerging Scholars Public Roundtable*. Boston: Boston University Department of Anthropology.
- Pinch, Trevor, and Wiebe E. Bijker. 1984. "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." *Social Studies of Science* 14(3): 399-441. <https://www.jstor.org/stable/285355>.
- Poon, Martha. 2007. "Scorecards as Devices for Consumer Credit: The Case of Fair, Isaac & Company Incorporated." *The Sociological Review* 55(2): 284. <https://doi.org/10.1111/j.1467-954X.2007.00740.x>.
- Schuster, Caroline, and Sohini Kar. 2021. "Subprime Empire: On the In-betweenness of Finance." *Current Anthropology* 62(4): 389-411.
- Siebert, Bernhard. 2015. *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*. Translated by Geoffrey Winthrop-Young. New York: Fordham University Press.
- Valdez, Natalí. 2019. "Improvising Race: Clinical Trials and Racial Classification." *Medical Anthropology* 38 (8): 635-650.
- Weston, Kath. 2013. "Lifeblood, Liquidity, and Cash Transfusions: Beyond Metaphor in the Cultural Study of Finance." *Journal of the Royal Anthropological Institute* 19(S1): S24-S41. <https://doi.org/10.1111/1467-9655.12014>.
- Wynter, Sylvia. 1992. "Rethinking 'Aesthetics': Notes Towards a Deciphering Practice." In *Ex-iles: Essays on Caribbean Cinema*, edited by Mbye B. Cham, 237-79. Trenton, NJ: Africa World Press.